



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,618	12/21/2000	Kenneth R. Wilsher	M-8666 US	2164

7590

05/08/2003

Greg Dublin
Dorsey & Whitney, LLP
370 17th Street, Suite 4700
Denver, CO 80202

EXAMINER

ROSENBERGER, RICHARD A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,618

Applicant(s)

WILSHER ET AL.

Examiner

Richard A Rosenberger

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-10 and 13-19 is/are rejected.
- 7) ☐ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 9. 6) ☐ Other: .

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao (US 5,812,708) and Paniccia (US 6,052,498).

Rao teaches directing light to photosensitive targets on an integrated circuit with a fiber and a lens (column 6, lines 30-38):

As discussed above, optics element 507 splits, collimates and focuses laser beams 509A-J into P-N junctions 515A-J using well known techniques. In one embodiment, optics element 507 includes a fiber optic system is employed to split the laser power and distribute and focus it into P-N junctions 515A-J. This embodiment includes individual micro-lenses at the ends of the fiber optic elements and any required matching of the silicon/air refractive index to maximize the light coupling into the silicon.

Rao does not discuss how the optical fibers and lenses are held in place; it is clear, however, that there must be some sort of "fixture" so holding them, they do not float in air unsupported.

Rao mentions (column 6, lines 23-29) that there may be a heat sink included in the arrangement:

In another embodiment of the present invention, optical element 507 is disposed between the silicon of substrate 513 and a heat sink (not shown). In that embodiment, optical element 507 is sandwiched between the silicon and the heat sink using well known techniques such that heat is sufficiently dissipated from the integrated circuit die.

It is known in the art that a heat sink may be combined with the "fixture" holding optical elements. This is shown by Paniccia (for example, the abstract, lines 6-9):

An optical assembly used to generate and direct the light beams of the optical bus may be included within a heat sink thermally coupled to the back side silicon substrate of the integrated circuit die.

It would have been obvious to combine the heat sink mentioned by Rao and the fibers and lenses also taught by Rao in the manner taught by Paniccia because this is a known manner of providing both elements taught by Rao in a convenient manner.

Both Rao (abstract, line 3) and Paniccia (column 7, lines 24) mention that the light source may be a laser.

Rao states that the optics can be implemented using "well known techniques" (column 6, line 32), and mentions computer-generated holograms (column 6, line 39) and lenses (column 6, line 36). The use of other known techniques or arrangements for focusing the light as desired, particularly given the teaching of Rao of using "well known techniques", would have been obvious.

It is known in the art that stray light is undesirable. It would have been obvious to provide means, such as blackening surfaces in the fixture, to capture

unwanted stray light to reduce the art-recognized deleterious effects of such stray light, such as light reflected by the detector being illuminated.

3. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over as applied to the claims above, and further in view of Waters *et al* (US 4,627,731).

It is known to focus light from a fiber onto a surface by means of a pair of lenses, the first of which collimates the light and the second of which focusses it; see Waters *et al*, figure 1, with the fiber with end 48 and two lenses 56 and 58. Using this known arrangement to focus light in a system such as taught by Rao would have been obvious because it is a known manner of focussing and directing light.

4. Claims 11 and 12 appear to contain allowable subject matter; the art does not show in the context claimed analyzing light reflected from a photosensitive element which is part of an integrated circuit to determine proper focussing or correct coupling of the light into the fiber. These claims are objected to as being dependent from an unallowed parent claim, but would be allowable if rewritten in independent form including all of the limitations of their parent claims.

5. Wilsher (US 6,501,288) is a related application discussed in the instant specification, page 2, lines 6 *et seqq*.

Application/Control Number: 09/746,618
Art Unit: 2877

Page 5

6. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 308-7722.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (703) 308-4804.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger
2 May 2003



Richard A. Rosenberger
Primary Examiner